

[News story: CEN updates affecting chemical measurements January 2018](#)

Fertilisers

[EN16962:2018](#) – Fertilizers – Extraction of water soluble micro-nutrients in fertilizers and removal of organic compounds from fertilizer extracts

Regulation (EC) No 2003/2003 relates to fertilisers placed on the EU market and designated as an 'EC fertiliser'. The Regulation states that the content of one or more of the micro-nutrients boron, cobalt, copper, iron, manganese, molybdenum, or zinc present in specified types of fertilisers shall be declared where certain conditions are fulfilled. The sampling and analysis methods shall, wherever possible, be taken from European Standards.

EN 16962 describes a method for extracting water soluble forms of boron, cobalt, copper, iron, manganese, molybdenum and zinc from mineral fertilisers containing one or more micro-nutrients. The standard also describes a procedure for removing organic compounds from the aqueous extract.

The extracts are analysed for the micro-nutrients using the analytical method described in EN16963 – Fertilizers – Determination of boron, cobalt, copper, iron, manganese, molybdenum and zinc using ICP-AES or EN 16965 – Fertilizers – Determination of cobalt, copper, iron, manganese and zinc using flame atomic absorption spectrometry (FAAS).

[EN 16964:2018](#) – Fertilizers – Extraction of total micro-nutrients in fertilizers using aqua regia

EN 16964 describes a method for the total extraction of boron, cobalt, copper, iron, manganese, molybdenum and zinc into aqua regia (a mixture of nitric and hydrochloric acid in a molar ratio 1:3) from mineral fertilisers containing one or more micro-nutrients.

The extracts are analysed for the micro-nutrients using the analytical method described in EN16963 – Fertilizers – Determination of boron, cobalt, copper, iron, manganese, molybdenum and zinc using ICP-AES or EN 16965 – Fertilizers – Determination of cobalt, copper, iron, manganese and zinc using flame atomic absorption spectrometry (FAAS).

This sampling method can also be used to extract contaminants such as cadmium, chromium, nickel, lead, arsenic and mercury that may be present in mineral fertilisers and could pose a risk to health and the environment.

The extracts are analysed for contaminants using the analytical methods described in EN16319 – Fertilizers and liming materials. Determination of cadmium, chromium, lead and nickel by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after aqua regia dissolution, EN16317 – Fertilizers and liming materials. Determination of arsenic by inductively

coupled plasma-atomic emission spectrometry (ICP-AES) after aqua regia dissolution and EN16320 – Fertilizers and liming materials. Determination of mercury by vapour generation (VG) after aqua regia dissolution.

[EN 16963:2018](#) – Fertilizers – Determination of boron, cobalt, copper, iron, manganese, molybdenum and zinc using ICP-AES

EN 16963 describes an analytical method for the determination of boron, cobalt, copper, iron, manganese, molybdenum and zinc in aqueous or acid extracts of fertilisers using inductively coupled plasma-atomic emission spectrometry (ICP-AES).

Where only traces of organic matter are present in the extract, it is considered unnecessary in most cases to apply the procedure for removing organic compounds.

[EN 16965:2018](#) – Fertilizers – Determination of cobalt, copper, iron, manganese and zinc using flame atomic absorption spectrometry (FAAS)

EN 16965 describes an analytical method for the determination of boron, cobalt, copper, iron, manganese, molybdenum and zinc in aqueous or acid extracts using flame atomic absorption spectrometry (FAAS).

Where only traces of organic matter are present in the extract, it is considered not necessary in most cases to apply the procedure for removing organic compounds.

EN 16962, 16964, 16963 and 16965 have been developed in accordance with European Commission Mandate [M/335](#) to prepare standards for methods of analysis in the field of animal nutrition part II, implementing the framework of [Regulation \(EC\) No 2003/2003](#) on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules.

Animal feed

[EN 17053:2018](#) – Animal feeding stuffs: Methods of sampling and analysis – Determination of trace elements, heavy metals and other elements in feed by ICP-MS (multi-method).

The elemental composition of animal feed additives and pre-mixtures is required to be known for the purposes of authorisation of certain feed additive compounds under EU legislation.

Trace elements are elements such as iron, copper, zinc, manganese, cobalt and selenium, present in small amounts and important for maintaining the metabolism of biological systems. The term heavy metal generally refers to any metallic element that has a relatively high density and toxicity at low concentrations and includes arsenic, cadmium, mercury, lead, thallium and uranium.

EN 17053 describes the extraction of arsenic, cadmium, cobalt, copper, iron,

mercury, manganese, molybdenum, selenium, thallium, uranium and zinc from animal feeds using pressure digestion with nitric acid and determination by inductively coupled plasma mass spectrometry (ICP-MS).

For the extraction of lead from animal feeds containing phyllosilicates (e.g. kaolinite clay) it is specified that wet digestion with nitric acid is used instead of pressure digestion and determined by ICP-MS.

EN 17053 has been developed in accordance with European Commission Mandate [M/522](#) to prepare standards for methods of analysis in the field of animal nutrition, implementing the framework of [Regulation \(EC\) No 882/2004](#) on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules.

Food

[EN 12014-2:2017](#) – Foodstuffs – Determination of nitrate and/or nitrite content – Part 2: HPLC/IC method for the determination of nitrate content of vegetables and vegetable products

EN 12014-2:2017 supersedes EN 12014-2:1997 and describes an updated analytical method where nitrate is extracted from vegetables and vegetable products into water and determined either by reverse-phase high performance liquid chromatography (HPLC) with a ultra-violet (UV) detector or by ion-exchange liquid chromatography (IC) with a conductivity detector or UV detector.

The existing HPLC/IC procedures have been improved and revalidated to obtain new precision data. The method is now considered applicable to vegetables and vegetable products having a nitrate content of 25 mg/kg or greater.

This method is also considered as suitable for also determining the nitrite content in vegetables and vegetable products but has not been validated.

EN 12014-2 is a standard for the determination of food contaminants implementing the framework of Regulation [\(EC\) No 882/2004](#) on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules.

Further information on food legislation can be found on the [document collection: Food and Feed Law. legislation review](#)